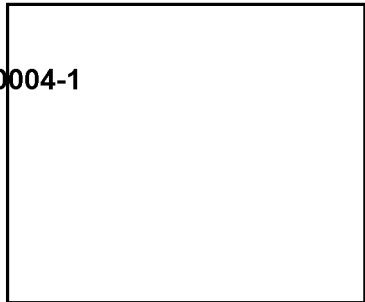


STAT  
To:

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2002/10/16 : CIA-RDP71B00822R000100210004-1

ILLEGIB



8 June 1965

John,

Here is the information I promised you  
from our phone conversation this afternoon.

Milt

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TABLE IV  
FIGURES OF MERIT - COMPARISON TABLE

HIGH VALUES ARE  
DESIRED

	Density ( $\rho$ )		Modulus Of Elasticity (E)		E/D	(E/D) <sup>1/2</sup>	Thermal Conductivity (K)		Specific Heat (C)		Coefficient of Expansion ( $\alpha$ )		K/Ca	(K/D) <sup>1/2</sup>
	Grams/cm <sup>3</sup>	Lbs/in <sup>3</sup>	Newtons/cm <sup>2</sup>	Lbs/in <sup>2</sup>			Cal/cm-sec - °C	BTU/ft-hr - °F	Cal/gm - °C	BTU/lb - °F	°C <sup>-1</sup>	°F <sup>-1</sup>		
Fused Quartz	2.20	.080	7.0 x 10 <sup>6</sup>	10.1 x 10 <sup>6</sup>	3.18 x 10 <sup>6</sup>	1.00	.0033	.80	.188	.188	55 x 10 <sup>-6</sup>	31 x 10 <sup>-6</sup>	31.9 x 10 <sup>3</sup>	1.00
Pyrex (7740)	2.35	.085	6.8 x 10 <sup>6</sup>	9.8 x 10 <sup>6</sup>	2.89 x 10 <sup>6</sup>	.91	.0027	.60	.25	.25	3.2 x 10 <sup>-6</sup>	1.8 x 10 <sup>-6</sup>	3.38 x 10 <sup>3</sup>	1.06
Vycor (7900)	2.18	.079	6.7 x 10 <sup>6</sup>	9.7 x 10 <sup>6</sup>	3.07 x 10 <sup>6</sup>	.97	.0022	.53	.19	.19	.80 x 10 <sup>-6</sup>	.44 x 10 <sup>-6</sup>	14.5 x 10 <sup>3</sup>	1.0
Invar (36%Ni)	8.0	.292	14.6 x 10 <sup>6</sup>	21.4 x 10 <sup>6</sup>	1.85 x 10 <sup>6</sup>	.58	.026	6.3	.095	.095	1.3 x 10 <sup>-6</sup>	.70 x 10 <sup>-6</sup>	190 x 10 <sup>3</sup>	5.08
Titanium	4.54	.164	11.6 x 10 <sup>6</sup>	16.8 x 10 <sup>6</sup>	2.55 x 10 <sup>6</sup>	.80	.042	10.1	.126	.126	8.5 x 10 <sup>-6</sup>	4.7 x 10 <sup>-6</sup>	39.1 x 10 <sup>3</sup>	1.22
Magnesium	1.74	.063	4.5 x 10 <sup>6</sup>	6.5 x 10 <sup>6</sup>	2.59 x 10 <sup>6</sup>	.81	.38	92	.25	.25	26 x 10 <sup>-6</sup>	14 x 10 <sup>-6</sup>	58.5 x 10 <sup>3</sup>	1.83
Beryllium	1.82	.066	28 x 10 <sup>6</sup>	40 x 10 <sup>6</sup>	15.4 x 10 <sup>6</sup>	4.84	.38	92	.516	.516	12.4 x 10 <sup>-6</sup>	6.9 x 10 <sup>-6</sup>	59.5 x 10 <sup>3</sup>	1.66
Pyrocera (9608)	2.50	.090	8.7 x 10 <sup>6</sup>	12.5 x 10 <sup>6</sup>	3.48 x 10 <sup>6</sup>	1.10	.0047	1.14	.19	.19	40 x 10 <sup>-6</sup>	.22 x 10 <sup>-6</sup>	62.0 x 10 <sup>3</sup>	1.95
"Ponglass"	.143	.0052	12 x 10 <sup>6</sup>	18 x 10 <sup>6</sup>	94 x 10 <sup>6</sup>	26	.00014	.033	.20	.20	8.3 x 10 <sup>-6</sup>	4.6 x 10 <sup>-6</sup>	.085 x 10 <sup>3</sup>	.0027
Silica-Slip Cast	1.9	.069	7.0 x 10 <sup>6</sup>	10.1 x 10 <sup>6</sup>	3.68 x 10 <sup>6</sup>	1.16	.00078	.188	.22	.22	54 x 10 <sup>-6</sup>	.30 x 10 <sup>-6</sup>	6.5 x 10 <sup>3</sup>	.206
Aluminum	2.70	.097	6.9 x 10 <sup>6</sup>	10.0 x 10 <sup>6</sup>	2.56 x 10 <sup>6</sup>	.80	.53	128	.215	.215	23.9 x 10 <sup>-6</sup>	13.3 x 10 <sup>-6</sup>	100 x 10 <sup>3</sup>	3.14
Alloy LA-685 (Super Invar)	8.17	.296	13.8 x 10 <sup>6</sup>	20 x 10 <sup>6</sup>	1.70 x 10 <sup>6</sup>	.53	.026	6.3	.12	.12	0.1 x 10 <sup>-6</sup>	.06 x 10 <sup>-6</sup>	2164 x 10 <sup>3</sup>	68.0

I.	.07	25-30	357	429	X	X	-100 +200° 7 300 600 2.5
II.	.07	7-10	100	143	X	X	-100 +200° 7 300 +200° 2.5
Case I. 70% boron - 30% Resin							
Case II. 20% boron - 50% Glass - 30% Resin							

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Pyrex (7740)	2.35	.085	$6.8 \times 10^5$	$9.8 \times 10^6$	$2.89 \times 10^6$	.91	.0027	.60	.25	.25	$3.2 \times 10^{-6}$	$1.8 \times 10^{-6}$	$3.38 \times 10^3$	106
Vycor (7900)	2.18	.079	$6.7 \times 10^5$	$9.7 \times 10^6$	$3.07 \times 10^6$	.97	.0022	.53	.19	.19	$.80 \times 10^{-6}$	$.44 \times 10^{-6}$	$14.5 \times 10^3$	.45
Invar (36Ni)	3.0	.292	$14.8 \times 10^5$	$21.4 \times 10^6$	$1.85 \times 10^6$	.58	.026	6.3	.095	.095	$1.3 \times 10^{-6}$	$.70 \times 10^{-6}$	$190 \times 10^3$	5.95
Titanium	4.54	.164	$11.6 \times 10^6$	$16.8 \times 10^6$	$2.55 \times 10^6$	.80	.042	10.1	.126	.126	$8.5 \times 10^{-6}$	$4.7 \times 10^{-6}$	$39.1 \times 10^3$	1.22
Magnesium	1.74	.063	$4.5 \times 10^6$	$6.5 \times 10^6$	$2.59 \times 10^6$	.81	.38	92	.25	.25	$26 \times 10^{-6}$	$14 \times 10^{-6}$	$58.5 \times 10^3$	1.83
Beryllium	1.82	.066	$28 \times 10^6$	$40 \times 10^6$	$15.4 \times 10^6$	4.84	.38	92	.516	.516	$12.4 \times 10^{-6}$	$6.9 \times 10^{-6}$	$59.5 \times 10^3$	1.66
Pyroceram (9608)	2.50	.090	$8.7 \times 10^6$	$12.5 \times 10^6$	$3.48 \times 10^6$	1.10	.0047	1.14	.19	.19	$40 \times 10^{-6}$	$.22 \times 10^{-6}$	$62.0 \times 10^3$	1.95
Foamglass	.143	.0052	$.12 \times 10^6$	$.18 \times 10^6$	$.84 \times 10^6$	.26	.00014	.033	.20	.20	$8.3 \times 10^{-6}$	$4.6 \times 10^{-6}$	$.085 \times 10^3$	.0027
Silica-Slop Cast	1.9	.069	$7.0 \times 10^6$	$10.1 \times 10^6$	$3.68 \times 10^6$	1.16	.00078	.188	.22	.22	$54 \times 10^{-6}$	$.30 \times 10^{-6}$	$6.5 \times 10^3$	.206
Aluminum	2.70	.097	$6.9 \times 10^6$	$10.0 \times 10^6$	$2.56 \times 10^6$	.80	.53	128	.215	.215	$23.9 \times 10^{-6}$	$13.3 \times 10^{-6}$	$100 \times 10^3$	3.14
Alloy LA-685 (Super Invar)	8.11	.296	$13.8 \times 10^6$	$20 \times 10^6$	$1.70 \times 10^6$	.53	.026	6.3	.12	.12	$0.1 \times 10^{-6}$	$.06 \times 10^{-6}$	$2165 \times 10^3$	68.0

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